ALBERTANS & CLIMATE CHANGE

meeting the challenge

WORKBOOK

Alberta

Please return this workbook in the envelope provided by April 25, 2007. This workbook is also available online at www.alberta.ca.

2007-04005/

setting the stage

Fossil fuels play an important role in Alberta. We use coal and natural gas to create most of our electricity. We also produce oil and gas to meet the demand across Canada and North America. The result is our greenhouse gas emissions are the highest in the country. This means we have both a responsibility and an opportunity to continue to take a leadership role in addressing climate change.

Alberta has taken important steps to respond to climate change. Our province was the first to develop an action plan for climate change in 2002 – *Albertans and Climate Change: Taking Action*. In 2003, Alberta was the first province in Canada to pass climate change specific legislation. Two years later we set up a greenhouse gas reporting system for large emitters. We are the first province to have introduced legislation to require large industry to cut their emissions.

We're close to completing the commitment we made under our climate change action plan. We understand that we need to do more. We need your input on how Alberta should continue to address climate change.

Alberta is committed to developing a new climate change action plan — with your advice and input. You can play an important role in addressing this global issue by taking part in this consultation.

This workbook asks some very important questions about:

> What goals Alberta should aim to achieve as part of a climate change strategy?
> Whether revised emissions targets should be set and what kind of targets are best for Alberta?
> What technologies should we consider?
> What actions can and should be taken?
> What can we do as individuals?

Answers to these questions will help shape the next steps in addressing climate change in our province.

Alberta has a wide range of options available for addressing the challenges of climate change. The choices we make depend on a number of factors including the goals we want to achieve and the consequences of various options on our economy, our society, our environment, our communities and our children.

We want you to think about the following questions and provide your input and ideas. Our information document *Albertans and Climate Change: Facts About Climate Change* is a good source to help you provide your input. The section at the back of this workbook tells you how you can respond.

Section 1

WHAT GOALS DO WE WANT TO SET?

Climate change is a complex issue that will require a global response over the long-term. There are no quick fixes. Scientists agree climate change is real, and our planet is warming due to increasing greenhouse gas emissions and human activities are very likely contributing.

It is very difficult to make significant reductions in the short-term without major costs to the economy and our quality of life. However, Alberta can take actions now that will reduce greenhouse gas emissions immediately and set the stage for future reductions.

The actions we take in the next few years should be based on the long-term goals we want to achieve. The choices are ours to make.

1. What goals should we set in our next climate change plan?
Think about the following statements and circle whether you agree or disagree with the proposed goals. *(1 means strongly agree and 5 means strongly disagree)*

	Agree				Disagree
Alberta will maintain a vibrant economy and high quality of life while addressing this global issue	1	2	3	4	5
Alberta will reduce overall greenhouse gas emissions	1	2	3	4	5
Alberta will lead Canadian provinces in the use of renewable and alternative energy sources	1	2	3	4	5
Albertans will have the knowledge and tools to deal with the impacts of climate change	1	2	3	4	5

2. What other goals would you like to see?

Section 2

WHAT IMPORTANT STEPS NEED TO BE TAKEN?

Depending on what goals we want to achieve as a province, there are a range of actions we could take. Emissions targets are viewed as an important step in ensuring that greenhouse gas emissions are reduced. If we set targets and measure our progress, it means action will be taken and results will be available to the public. It also means we can assess the effectiveness of the actions we take to achieve the targets.

Technology needs to be part of the solution to this global problem. Some technology is available immediately while others will take substantial time and resources to develop.

What are the best choices we could make?

Intensity or absolute targets?

Alberta was the first province in Canada to set a provincial target and require large industrial emitters to report and reduce their emissions. Our target and reduction rules are based on reducing emissions intensity – the amount of emissions per year relative to the size of Alberta's economy.

If you applied this approach to a business that produces widgets, the business would have to reduce emissions per widget but the business's overall emissions could rise if production increased substantially.

Alberta's target is to reduce emissions intensity by 50 per cent below 1990 levels by 2020. Emissions intensity targets take greater consideration of the impact on the economy, can make use of available technology to achieve short-term targets and, depending on the specific target, can be more realistic to achieve. But it means overall emissions could continue to rise. In Alberta, for example, emissions intensity has decreased by 16 per cent since 1990, but total emissions have actually increased by 40 per cent during the same time period due to significant growth in our economy.

Another approach is to set absolute targets. For example, Alberta could set a target of reducing X tonnes of greenhouse gas emissions by the year Y, regardless of what happens with the economy. Setting an absolute target does not mean there are no emissions. In a growing economy like Alberta's, absolute reductions in emissions can be achieved but it is important that the right policies and programs are in place to allow the economy time to adjust.

A combination of both approaches could be used so that emissions intensity targets are used in the short-term and absolute targets are a longer-term objective. The result would be immediate action on emissions, a lesser impact on the economy and time for researchers to develop innovative solutions. This, in essence, is Alberta's existing policy, where we have chosen to transition from intensity based targets to absolute reductions, by investing in technology.

1. **What is the best way for Alberta to use targets to stimulate reductions in GHG emissions?** Select the statement that **best** reflects your preference.

   Alberta should continue with emissions intensity targets only

   Alberta should adopt absolute targets as quickly as it can

   Alberta should continue with emissions intensity targets, but adopt absolute targets prior to an established deadline
   If you selected this last option, which of the following deadlines would you prefer?
   2015 or earlier 2015 to 2021 Sometime after 2021

   Other

Is technology the solution for the longer-term?

Technology has a large role to play in addressing climate change. Meeting reduction targets, whether they are intensity or absolute, will require innovative technologies. A range of technologies will be required as no single technology can provide all the answers. Alberta can make a contribution to this global issue through the development of technology. By developing the technology here it will enable us to continue leading and provide the opportunity to market to the rest of the world.

The Alberta government has been investing in research to develop technologies that, over the long term, will reduce emissions and improve energy efficiency. Industry has also invested in research into new technologies and has incorporated some of these technologies already. But greater effort and investment will be required to get new technologies developed and ready for use.

There are some options we could consider. For example, we could invest in technologies that we know about today or are almost ready to implement. That could include technologies that capture carbon emissions and use a pipeline to transport them to places where they can be safely managed underground or used to recover more conventional oil. There are a few small projects like this in Alberta and about a dozen of them around the world. This approach would have an immediate impact in reducing emissions but it's still a fairly new idea and the costs are high. One major advantage of this approach is that it would complement the future development of Alberta's oil, gas and oil sands industries.

Another option is to invest in longer-term research to develop new technologies. One example is clean coal technology. Because these are new approaches, we don't know for sure that they will be successful. But on the other hand, they could unlock new opportunities and provide a higher return on our investment if they are successful.

2. **What technologies should we support?** Using the following scale, in which 1=not important, and 5=very important, indicate your rating of the importance of each of the following technologies.

	Not Important				**Very Important**
Carbon capture and management	1	2	3	4	5
The technology has been developed but implementing it could cost in the range of $4 to $5 billion.					
Clean coal technology	1	2	3	4	5
We have hundreds of years' supply of coal and research suggests that new technologies can reduce or perhaps even eliminate emissions from burning coal. A test site is being planned for Alberta and this technology could be commercially developed for other countries. On the other hand, this means continued strip mining of coal for the longer term and costs for implementation could be high.					
Renewable and alternative energy	1	2	3	4	5
Renewable and alternative energy sources come close to eliminating greenhouse gas emissions. But currently they are more costly than conventional energy sources and would need further development to meet growing energy demands.					
Energy efficiency and conservation	1	2	3	4	5
We could invest in existing and new technologies to improve energy efficiency or conserve energy. These approaches could result in lower costs to home heating and transportation but they require a significant upfront investment.					
Nuclear energy	1	2	3	4	5
Nuclear energy is controversial but the fact is that it causes no greenhouse gas emissions or air pollution. However, there are currently no long-term solutions for the storage of nuclear waste.					

Comments:

Section 3

WHAT ACTIONS SHOULD WE TAKE?

In addition to technology, Alberta could take other actions to reduce greenhouse gas emissions. These include putting more focus on renewable and alternative energy sources, taking steps to reduce our energy use, choosing the right approach to achieve our targets and taking action to adapt to changes in Alberta's climate.

Should Alberta focus on greater use of renewable and alternative energy sources?

Renewable energy comes from sources such as wind or solar power. They are called renewable because there is a never-ending supply. Alternative energy sources include options like biomass and geothermal energy that are not widely used in Alberta but certainly have potential. Both renewable and alternative energy sources produce less greenhouse gas emissions and are seen as a "green" alternative to conventional energy sources.

Alberta has encouraged the use of renewable energy and set a target of increasing the percentage of Alberta's electricity generation coming from renewable energy sources by 3.5 per cent by 2008. As a result, we've seen a growing use of wind power. However, renewable energy forms only a small portion of our overall energy mix because it traditionally has been less reliable and more expensive than fossil fuels.

One way we could expand the purchase and production of renewable and alternative energy is to provide incentives. What do you think?

1. **How should Alberta encourage greater production and use of renewable and alternative energy?** Indicate which of the following approaches you agree with, or disagree with.

	Agree	Disagree	No Opinion
Take no action			
Provide incentives to consumers			
Provide incentives to producers			
Require companies to use renewable and alternative energy for a portion of their energy use			
Mandate a percentage of provincial electrical production that must come from renewable and alternative energy			

Comments:

What steps should we take to reduce our use of energy or become more energy efficient?

Energy conservation and efficiency are important ways everyone can reduce greenhouse gas emissions and save money at the same time. Examples of actions individuals can take include turning down the thermostat, installing weather stripping around windows or putting in an energy efficient furnace. Governments can help everyone take action by providing information and education, introducing incentives, and setting energy efficiency standards for products.

2. **How should we encourage everyone to become more energy efficient?**
   Indicate which of the following approaches you agree with, or disagree with.

	Agree	Disagree	No Opinion
Take no action			
Provide incentives to consumers			
Provide incentives to industry			
Require companies to use energy efficient technology			
Set energy efficient standards for products			
Increase the energy efficiency standards in our provincial building codes			

Comments:

3. **As an example, should the Alberta government use a portion of the natural gas rebate to provide incentives for energy efficiency?** Currently, the provincial government provides natural gas rebates to Albertans when the price of natural gas goes above a certain amount. Since 2003, the Natural Gas Rebate Program has provided over $1 billion to Albertans. Would it be useful to spend some of that money on incentives to promote energy efficiency?

   Yes

   No

   Don't know

What are the most effective tools for achieving reductions in greenhouse gas emissions?

The provincial government can use a number of tools to ensure that greenhouse gas emissions are reduced. These include encouraging voluntary measures, investing in research and development, creating incentives for individuals and industry, setting standards and establishing legislation and regulations.

Since the 1990s, the first response to climate change was primarily voluntary and some incentive programs were introduced for consumers. While some success was achieved, if we want to meet more aggressive targets or reduce our levels of greenhouse gas emissions, different approaches may be required.

4. **What tools should Alberta use to achieve reductions in greenhouse gas emissions in the future?** Using the following scale, in which 1=not important, and 5=very important, indicate your rating of the importance of each of the following actions in achieving reductions in greenhouse gas emissions.

	Not Important				**Very Important**
Provide information and education	1	2	3	4	5
Voluntary measures	1	2	3	4	5
Incentives	1	2	3	4	5
Investing in research and development	1	2	3	4	5
Establishing regulations	1	2	3	4	5
Taxes and surcharges on fuel and electricity	1	2	3	4	5

Comments:

Even though climate change is a long-term process, what steps should we take now to adapt to changing climate conditions?

We are already seeing the impact of climate change in Alberta. Studies show we are likely to see higher temperatures, less water for crops and lower lake levels, more extreme weather conditions, loss of some species and disappearing ecosystems. There are also potentially positive changes – longer summer seasons, shorter and warmer winters, longer growing seasons and opportunities to grow a wider range of crops. Although we know that it will take many years, perhaps decades, to see the full impact of climate change, there are actions we can take now to adapt to changes and to reduce the impact.

5. **What are the most important steps we could take now to adapt to climate change?** Using the following scale, in which 1=not important, and 5=very important, indicate your rating of the importance of each of the following actions in adapting to climate change.

	Not Important				**Very Important**
Provide information and education	1	2	3	4	5
Explore ways to reduce water use in the energy industry and agriculture	1	2	3	4	5
Develop crops that are more resistant to drought	1	2	3	4	5
Develop strategies to decrease risk to forests (fires, insects)	1	2	3	4	5
Increase pest and disease preparedness	1	2	3	4	5
Invest in research on new adaptation technologies	1	2	3	4	5
Build and enhance infrastructure to withstand challenges of climate extremes	1	2	3	4	5
Enhance weather monitoring and emergency response systems	1	2	3	4	5
Prepare strategies to respond to loss of northern roads (ice and gravel)	1	2	3	4	5
Put land use practices in place to preserve wetlands	1	2	3	4	5
Take advantage of longer growing season	1	2	3	4	5

Comments:

What can government do to reduce their own emissions?

The Alberta government has taken actions to reduce its own emissions. Ninety per cent of its electricity use comes from green power sources. All 200 government-owned facilities have received energy improvements resulting in $6 million in savings. Hybrid vehicles are offered under a lease option. So far, only a small number of hybrid vehicles have been leased.

6. **What other actions do you think the provincial government should take to reduce emissions within its own operations?**

Section 4

WHAT ROLE CAN INDIVIDUALS PLAY?

We all share a responsibility to take action on climate change and governments have a significant role to play. For example, the Alberta government is responsible for building codes and could increase the energy efficiency requirements in the code. The federal government could increase the energy efficiency standards for certain products as they have responsibility for products that come into Canada and move between provinces. Municipal governments have responsibility for zoning and could increase the density of development to reduce emissions from transportation. In addition, governments could make their buildings more energy efficient and only purchase green office supplies. Industry needs to take a lead role in becoming as efficient as possible and in choosing leading edge technology. Albertans can help too. If you drive a car, it may account for half of your yearly greenhouse gas emissions. For example, a medium-sized car driven 20,000 kilometres a year produces about four tonnes of carbon dioxide.

1. **How willing are you to make changes in your travel habits in order to reduce greenhouse gas emissions?**

	Already doing	Willing to do	Not willing to do
Car pooling to work	○	○	○
Using public transit to commute to work	○	○	○
Working from home	○	○	○
Living closer to work	○	○	○
Selling your vehicle and using alternatives such as biking, walking or public transit	○	○	○
Buying a more energy efficient vehicle	○	○	○

2. **What changes would you be willing to make in your own home to reduce greenhouse gas emissions?**

	Already doing	Willing to do	Not willing to do
Purchase energy efficient light bulbs	○	○	○
Pay more for green energy	○	○	○
Improve energy efficiency in your home through better insulation or windows	○	○	○
Replace your furnace and appliances with energy efficient models	○	○	○
Install a small renewable energy system (e.g. solar panels, wind generation)	○	○	○
Build and/or buy an energy-efficient home	○	○	○

3. **As a consumer, what purchasing changes would you be willing to make to reduce greenhouse gas emissions?**

	Already doing	Willing to do	Not willing to do
Purchase only Energy Star rated products	○	○	○
Buy food and other products with reusable, recyclable and reduced packaging	○	○	○
Use cloth bags for your trips to the store	○	○	○
Buy locally grown fruits, vegetables and meat to reduce emissions from transportation	○	○	○
Use available tools to track and make improvements in your annual greenhouse gas emissions	○	○	○

4. What other actions would you suggest?

Section 5

SOME INFORMATION ABOUT YOU

This information will be used only for statistical purposes.

1. What are the first three digits of your postal code?

2. What is your age?

   Under 18

   18 - 29

   30 - 49

   50 - 65

   over 65

3. Are you answering this questionnaire as…

   A private citizen

   A group or organization *(please name the group)*

   A local government

   A private company *(please name the company)*

   Other

how can you get involved?

COMPLETION OF THIS WORKBOOK

We would like to have responses to this workbook in the mail by April 25, 2007. Copies of this workbook are available at www.alberta.ca.

You can submit this workbook:

Online
www.alberta.ca

By mail in the envelope provided or to:
Accurate Data Services Inc.
400, 10621 - 100 Avenue NW
Edmonton, AB T5J 0B3

By fax
(780) 421-4502

COMMUNITY WORKSHOPS

In addition to this workbook, a series of community workshops will be held across the province in March and April. Watch your local newspaper or check the Government of Alberta website to find the dates and nearest locations.

This summer, a discussion paper will be available summarizing what we heard and proposing new directions for the future. You'll also have an opportunity to review that discussion paper and provide your input.

ADDITIONAL QUESTIONS AND INFORMATION

If you have any questions about this workbook or the consultation process, please telephone:

310-4455 (toll free across Alberta)
or go to www.alberta.ca

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